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Report on Tobacco

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Collaborative studies were conducted on cigarette smoke analysis and on the determination of potassium and calcium in tobacco. The study on cigarette smoke analysis was a sequel to that reported in 1961, but employed simplified procedures (one instead of two types of filter) and eliminated the determination of water in the smoke condensate. Interlaboratory precisions for the two studies were similar and, although not as good as anticipated, were the best that could be achieved for the present time. Cigarettes are not a uniform product, and attempts to obtain a more homogeneous sample by using physical measurements to select the sample for analysis seem to lead to lower within-laboratory precision. In addition to the variability of the sample and differences between analysts, unavoidable differences between smoking machines and smoking room conditions, particularly relative humidity, contribute to low interlaboratory precision.

Because some smoke materials pass through the filter used for particulate matter, the Referee recommends that the methods for particulate matter and alkaloids as nicotine in cigarette smoke, tested in this year's collaborative study, be continued to develop an adaptation which will measure total condensables.

The preliminary study on potassium and calcium in tobacco was limited to the analysis of a synthetic solution made to simulate a sample extract. The objective of the study was to compare results obtained in different laboratories on different flame photometers before actual tobacco samples were sent for analysis. The results indicate that potassium values tend to run slightly low. Only one of ten analysts obtained high values, while five were low by as much as 2% relative. Five of eight who reported calcium results obtained low values. The coefficients of variation were approximately 2 and 10% for potassium and calcium, respectively. The procedure for calcium will be re-examined before further work is undertaken.

The first action procedure for chlorides in tobacco has given satisfactory results in several laboratories for periods from one to several years. In addition, the interlaboratory precision in the first study by 13 collaborators analyzing six samples was excellent. Therefore, it is recommended that the first action procedure be adopted as official, final action.

The first action methods for both nitrogen (total) and for total alkaloids (as nicotine) by the distillation method have been in use for at least three years. No criticism or suggested changes have been received. In addition, these methods are refinements of existing or replaced official procedures. The Referee, therefore, feels justified in recommending their adoption as official, final action.

Recommendations

It is recommended—

(1) That the first action method for total nitrogen in tobacco, **6.103–6.105**, be made official, final action.

(2) That the first action distillation method for total alkaloids (as nicotine), **6.106–6.110**, be made official, final action.

(3) That the first action method for chlorides in tobacco, *This Journal*, **46**, 131 (1963), be made official, final action.

(4) That study of methods for particulate matter and alkaloids as nicotine in cigarette smoke be continued and extended to include a method for determining total condensables.

(5) That study of methods for potassium, calcium, and petroleum ether extractables be continued.

(6) That work be initiated on methods for the determination of moisture in tobacco.